

## REMARKS

Claims 1 - 24 remain active in this application. Claims 8 - 14 and 20 - 23 have been withdrawn from consideration as being non-elected, with traverse, in response to a requirement for election of species. The specification has been reviewed and editorial revisions made where seen to be appropriate, including the corrections required by the Examiner. Claims 1, 15 and 24 have been amended. Support for the amendments of the claims is found throughout the application, particularly in Figures 3 - 9 and the description thereof in paragraphs 0019 - 0024. No new matter has been introduced into the application. The approval of the formal drawings submitted August 24, 2004, is noted with appreciation as is the indication of allowability of the subject matter of claims 2 - 7 and 16 - 19.

The Examiner has adhered to the requirement for election of species and made the requirement final. While not admitting the propriety of the requirement, Applicants do not wish to further pursue the issue. Accordingly amendments to claims 1 and 15 above remove alternative language encompassing non-elected species and thus the independent claims in the application are directed only to the elected species involving a chemical reaction interface. (Claim 24 has been amended to remove materials not appropriate to the species providing a chemical reaction interface.) Claims 8 - 14 and 20 - 23 which are withdrawn from consideration have been retained (notwithstanding the lack of antecedent correspondence for some terms engendered by the amendment of claims 1 and 15) but will be canceled upon the filing of a divisional application for further prosecution thereof. No requirement for cancellation of non-elected claims is made in the current office action and it is respectfully submitted that the above is a full and

complete response to the Examiner's adherence to the requirement for election of species.

The Examiner has required correction of certain matters in the specification and claims. This requirement is respectfully traversed as being moot in view of the amendments made above. However, it is respectfully pointed out that the amendment to paragraph 0018 is made for consistency, as the Examiner notes, and does not represent an error. As explained at length in the specification. Hydrogen Fluoride and Hydrofluoric acid have the same chemical constituency; the sole distinction being that the hydrogen and fluorine atoms/ions of the latter are substantially dissociated in the presence of water while only a very small degree of dissociation will occur where water is not present or strongly bound by a hygroscopic fluid material. Therefore, there is no substantive difference between hydrogen fluoride in a hygroscopic material and hydrofluoric acid in a hygroscopic material and the original language is not incorrect. In regard to consistency, Applicants have sought to use these terms in a manner to most clearly convey the nature and principles of operation of the invention. Accordingly, withdrawal of the objection and requirement for correction as being moot is respectfully requested.

The Examiner has also objected to the claims in regard to the usage of the term "interface"; asserting the usage to be misleading and implying an interface within the layer of material. To the extent, if any, that the Examiner's observation is valid, it appears to be in regard to the non-elected species in which the layer of material is comprised of two bodies of material having a grain or crystal lattice dislocation between them which, as such, would still comply with the definition of "interface" as "a surface at which two portions of matter or space meet" as stated to be

the principal definition in the Shorter Oxford English Dictionary. It is respectfully submitted that this usage consistent with such a definition is clearly and consistently observed throughout the original disclosure and claims.

However, it is also respectfully submitted that this issue has been rendered moot by the amendment of the independent claims to not only delete the alternative recitations in regard to "grain interface" and "material interface" where the interface is, in fact, within a layer while still being a "surface between two bodies of material" (even if the same material) but to explicitly recite the location as being at a surface of the layer as is appropriate to the species including a "chemical reaction interface".

Therefore, it is respectfully submitted that this objection is clearly without any substantive basis, particularly in regard to the elected species and the claims as now amended. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Claims 1 and 15 have been rejected under 35 U.S.C. §102 as being anticipated by Smith, Jr. (4,049,347) and claims 15 and 24 have been rejected under 35 U.S.C. as being anticipated by Chen. Both of these grounds of rejection are respectfully traversed, particularly as being moot in view of the above amendments to claims 1 and 15 since neither reference discloses a material layer which provides a "chemical reaction interface" and the Examiner has not asserted that either reference does so.

The invention is directed to a masking structure that provides much greater protection to surfaces from being affected by semiconductor manufacturing processes (unless the processes are intended to affect that structure) while reliably providing for complete removal thereof when necessary to do so. In regard to

the elected species featuring a chemical reaction interface, the upper surface of an oxidized or hydrated thin layer of TERA material provides enhanced protection of an underlying surface and yet can have an enhanced chemical reactivity to some etchant materials in an acid form for etching by being able to evolve water as long as any of the oxidized or hydrated TERA material remains and, if the acid/material is mixed with a hygroscopic fluid which scavenges the water rapidly as it is evolved, the etchant material can no longer remain in a highly reactive acid form when evolution of water terminates upon completion of removal of the oxidized or hydrated TERA. No such teaching or suggestion is found in either reference applied by the Examiner and, indeed, claims directed to the chemical reaction interface have been indicated as directed to allowable subject matter.

Specifically in regard to the Smith, Jr. reference, the Examiner seeks to read the recitation of material layer or layer of material on a resist layer and suggests that a resist layer would provide a "material interface" (which is no longer recited in claim 1 or claim 15) at the juncture of the lower surface of the resist and the surface to be protected thereby (and which could not serve as a chemical reaction interface at that location, particularly in a manner consistent with other explicit recitations of claims 1 and 15 particularly in regard to removal of the material layer selectively to the underlying surface or the interface itself, as distinct from the thickness of the resist, providing protection from semiconductor manufacturing processes.

In regard to Chen, the Examiner again suggests that Chen teaches a layer providing a material interface at the same location as asserted in regard to Smith, Jr. but not a chemical reaction interface and not at a location where such an interface could

function as a chemical reaction interface or such that the chemical reaction interface itself could function to protect the underlying surface, particularly in a manner consistent with removal of the layer. Further, in Chen, TERA is used as a cap layer on the hard mask which is covered by a blocking layer of  $\text{SiO}_2$  and, while Chen discloses prior art in which a cap layer is formed by oxidizing a hardmask layer (11), Chen is not seen to contain any teaching or suggestion of oxidizing or hydrating the TERA layer, itself functioning as a cap layer (12), or developing a chemical reaction interface in any other way.

Accordingly, it is seen that the Examiner has not asserted that either Smith, Jr. or Chen even suggests, much less provides, a masking structure or method of protecting a surface that involves anything that could reasonably be considered to answer the recitation of a chemical reaction interface. Thus, whatever the merits of the asserted ground of rejection may have been, they are clearly inapplicable to the claims as now amended and it is respectfully submitted that no *prima facie* demonstration of anticipation or obviousness can be made based on Smith, Jr. and/or Chen. Therefore, it is respectfully submitted that the currently asserted grounds of rejection are clearly untenable and withdrawal thereof is respectfully requested.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 09-0458 of International Business Machines Corporation (East Fishkill).

Respectfully submitted,



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